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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,421	09/30/2003	Shinichi Sato	03500.017614	2691

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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

SHAH, MANISH S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/673,421

Applicant(s)

SATO ET AL.

Examiner

Manish S. Shah

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

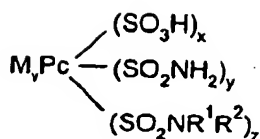
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/16/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

# Attachment

## Formula 1:



Formula (1)

R<sup>3</sup> is independently a group selected from H, -SR<sup>4</sup>, -CO<sub>2</sub>R<sup>5</sup> and -NR<sup>6</sup>R<sup>7</sup>; where:

R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> independently represent H, C<sub>1-30</sub>alkyl optionally substituted by one or more groups selected from hydroxy, mercapto, sulpho, carboxy, cyano and -PO<sub>3</sub>H<sub>2</sub>;

v is the valence of Pc divided by the valence of M;

x is from 1.8 to 3.8;

y is from 0.1 to 2.7;

z is from 0.1 to 2.7; and

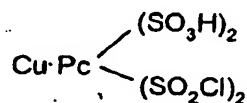
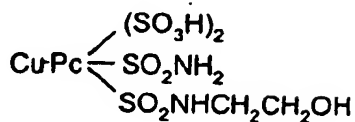
x, y and z satisfy  $2 \leq x + y + z \leq 4$ .

In which:

M represents a metal or H;

Pc represents a phthalocyanine nucleus; and

R<sup>1</sup> represents H or -(CH<sub>2</sub>)<sub>n</sub>R<sup>3</sup>; R<sup>2</sup> represents -(CH<sub>2</sub>)<sub>n</sub>R<sup>3</sup>; or R<sup>1</sup> and R<sup>2</sup> together with the nitrogen atom to which they are attached represent a 5 or 6-membered ring; where: n is independently an integer from 1 to 30; and



Copper phthalocyanine (115g) was added in portions to stirred chlorosulphonic acid (308 ml) over 30 minutes keeping the temperature below 50°C. The mixture was stirred for 30 minutes before being heated gradually to 140°C, at which temperature it was stirred for 3 hours to obtain CuPc(SO<sub>3</sub>H)<sub>4</sub>.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenworthy et al. (# EP 1239010 A1) in view of Koike et al. (# US 4853036) and Mayo et al. (# US 6174355).

Kenworthy et al. discloses an aqueous ink including a phthalocyanine dye, represented by the general formula 1 as shown in the attachment and an aqueous medium, wherein dye does contains component of  $x+y+z=2$  to 4 (see Abstract; [0025], see Examples). They also disclose that the ink is for ink jet recording ([0056]), and it contains an amine compound and a glycol compound, wherein the amine is 2-pyrrolidone and the glycol is ethylene glycol ([0039]-[0040]).

Kenworthy et al. differs from the claim of the present invention is that the amine and glycol compound having a vapor pressure of 0.01 mmHg or higher at 20 to 25 degree C, and viscosity of the ink composition within a range of 1 to 5 mPa.s, more preferable 1 to 2.5 mPa.s.

Koike et al. teaches that to improve the ejection stability, ink composition including the amine and glycol compound having the vapor pressure of 1 mmHg or less

(column: 6, line: 5-35), and viscosity of the ink composition is less than 5 mPa.s (c.P.) (see Table 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Kenworthy et al. by the aforementioned teaching of Koike et al. in order to have the ink composition with the improved ejection stability, because of that it increases the life of print head.

Mayo et al. teaches that to get the high quality printed image with minimal intercolor bleed, ink composition has a viscosity of from about 1 to 5 c.P, and more preferably from 1 to 2. c.P. at about 22 degree C (column: 6, line: 50-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Kenworthy et al. by the aforementioned teaching of Mayo et al. in order to have the high quality printed image with minimal intercolor bleed.

2. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenworthy et al. (# EP 1239010 A1) in view of Koike et al. (# US 4853036).

Kenworthy et al. discloses an inkjet recording method including a steps of discharging an aqueous ink onto recording medium ([0051]-[0056]), wherein aqueous ink including a phthalocyanine dye represented by the general formula 1 as shown the attachment and an aqueous medium, wherein dye does contains component of  $x+y+z=2$  to 4 (see Abstract; [0025], see Examples). They also disclose that the ink is for ink jet recording ([0056]), and it contains an amine compound and a glycol compound, wherein

the amine is 2-pyrrolidone and the glycol is ethylene glycol ([0039]-[0040]). They also disclose that the recording medium has a receiving layer on a substrate, which contains silica ([0053]-[0056]).

Kenworthy et al. differs from the claim of the present invention is that the amine and glycol compound having a vapor pressure of 0.01 mmHg or higher at 20 to 25 degree C, and viscosity of the ink composition within a range of 1 to 5 mPa.s, more preferable 1 to 2.5 mPa.s.

Koike et al. teaches that to improve the ejection stability, ink composition including the amine and glycol compound having the vapor pressure of 1 mmHg or less (column: 6, line: 5-35), and viscosity of the ink composition is less than 5 mPa.s (c.P.) (see Table 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Kenworthy et al. by the aforementioned teaching of Koike et al. in order to have the ink composition with the improved ejection stability, because of that it increases the life of print head.

3. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenworthy et al. (# EP 1239010 A1) in view of Koike et al. (# US 4853036) as applied to claims 10-12 above, and further in view of Santo et al. (# US 5965252).

Kenworthy et al. and Koike et al. discloses all the limitation of the ink jet recording medium except that the ink receiving layer contains an alumina hydrate, wherein alumina hydrate is represented by the formula:  $\text{Al}_2\text{O}_{3-n}(\text{OH})_{2n} \cdot m\text{H}_2\text{O}$ , wherein n

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represents an integer 1, 2 or 3; m represents a value of 0 to 10, however m and n do not become 0 at the same time.

Santo et al. teaches that to get the weather fastness printed image, ink receiving layer contains an alumina hydrate, wherein alumina hydrate is represented by the formula:  $\text{Al}_2\text{O}_{3-n}(\text{OH})_{2n} \cdot m\text{H}_2\text{O}$ , wherein n represents an integer 1, 2 or 3; m represents a value of 0 to 10, however m and n do not become 0 at the same time (column: 3, line: 55-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink receiving layer of the substrate of Kenworthy et al. by the aforementioned teaching of Santo et al. in order to have the weather fastness printed image, which increases the storage stability of the recording medium.

4. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenworthy et al. (# EP 1239010 A1) in view of Koike et al. (# US 4853036).

Kenworthy et al. discloses an inkjet recording apparatus including a recording unit and an ink tank, which includes an aqueous ink, which includes a phthalocyanine dye represented by the general formula 1 as shown in the attachment and an aqueous medium, wherein dye does contains component of  $x+y+z=2$  to 4 (see Abstract; [0025], see Examples). They also disclose that the ink is for ink jet recording ([0056]), and it contains an amine compound and a glycol compound, wherein the amine is 2-pyrrolidone and the glycol is ethylene glycol ([0039]-[0040]).

Kenworthy et al. differs from the claim of the present invention is that the amine and glycol compound having a vapor pressure of 0.01 mmHg or higher at 20 to 25 degree C, and viscosity of the ink composition within a range of 1 to 5 mPa.s, more preferable 1 to 2.5 mPa.s.

Koike et al. teaches that to improve the ejection stability, ink composition including the amine and glycol compound having the vapor pressure of 1 mmHg or less (column: 6, line: 5-35), and viscosity of the ink composition is less than 5 mPa.s (c.P.) (see Table 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Kenworthy et al. by the aforementioned teaching of Koike et al. in order to have the ink composition with the improved ejection stability, because of that it increases the life of print head.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 8:00am-4:30pm.

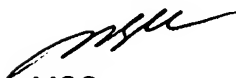
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manish S. Shah  
Primary Examiner  
Art Unit 2853



MSS  
12/14/04